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Implementation of the proposals for action of the Intergovernmental Panel on Forests/Intergovernmental Forum on Forests and the plan of action of the United Nations Forum on Forests: progress in implementation

Rehabilitation and restoration of degraded lands and the promotion of natural and planted forests

Report of the Secretary-General

Summary

An estimated 2.6 billion people are affected by land degradation and desertification in more than one hundred countries. Forces contributing to this situation include climatic variations and unsustainable land use practices.

International collaboration and funding to rehabilitate and restore degraded lands and develop forest lands are increasing, however, developing countries still have limited capacity to formulate and implement sound plans to address these problems and experience difficulties in accessing information technology and networks.

The lack of reliable information on planted forests and secondary tropical forests is a serious constraint, limiting ability to detect trends accurately and to develop future scenarios regarding these resources.

Many tools to sustainably manage natural and planted forests are available, including codes of harvesting, criteria and indicators, management and operational planning guidelines, voluntary certification schemes, environmental and social

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impact assessment and participatory planning guidelines. However, their application is not yet sufficiently widespread, particularly in developing countries and countries with economies in transition.

It is estimated that the secondary tropical forest area comprises 32 per cent of global forest cover, with potential in the future to increase substantially, in area, economic significance and as a source of wood, non-wood forest products and protection values.

The current share of the supply of global roundwood originating from planted forests is estimated at 35 per cent and is projected to increase to 46 per cent by 2040. The significance of planted forests to wood production is likely to increase in all regions, providing a critical addition to raw material supply from natural forests.

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I. Introduction

1. In its multi-year programme of work (E/CN.18/UNFF/2001/Part II), the United Nations Forum on Forests decided to consider, at its second session, progress in the implementation of Intergovernmental Panel on Forests/Intergovernmental Forum on Forests (IPF/IFF) proposals for action related to, inter alia, rehabilitation and restoration of degraded lands and the promotion of natural and planted forests. The present report, therefore, addresses the productive aspects of the rehabilitation and restoration of degraded lands, in particular through planted forests and natural forest restoration.

2. The report was prepared by the Food and Agriculture Organization of the United Nations (FAO), in close consultation with the secretariat of the United Nations Forum on Forests and in collaboration with other member organizations of the Collaborative Partnership on Forests.

II. Background

3. The IPF and IFF proposals for action related to rehabilitation and restoration of degraded lands and the promotion of natural and planted forests are contained in paragraphs 28 (a) and (b), 46 (g) and 58 (b) (ii) and (iii) of the final report of IPF (E/CN.17/1997/12); and paragraphs 64 (g), 122 (a) and 129 (b), (c), (d) and (g) of the final report of IFF (E/CN.17/2000/14).

4. In summary, IPF urged countries to: assess long-term trends in their supply and demand for wood and to promote the sustainability of their wood supply and the means for meeting demand, emphasizing investment in sustainable forest management and strengthening of institutions; and enhance the role of forest plantations as complementary to natural forests and as an important element of sustainable forest management.

5. IPF also invited the Committee on Science and Technology of the Conference of the Parties to the United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa to support research on: plant species that would help restore arid, semi-arid and dry sub-humid land; ways to rehabilitate existing vegetation; water management techniques; the potential for multipurpose trees; and the supply of timber and non-timber forest products.

6. IFF encouraged countries to promote policies to meet the increasing demand for wood and non-wood forest products and services, including through planted forests and trees outside forests, and to work towards an internationally agreed upon definition of planted forests.

7. IFF urged international organizations and donor countries to strengthen their support to and collaboration with international programmes, including through the provision of financial resources and the transfer of environmentally sound technologies and conventions regarding fragile ecosystems.

III. Implementation of the proposals for action of the Intergovernmental Panel on Forests and the Intergovernmental Forum on Forests and the Plan of Action of the United Nations Forum on Forests

8. This section provides an overview of ongoing major activities related to various aspects of rehabilitation and restoration of degraded lands and the promotion of natural and planted forests. It should be noted that in-depth analysis has not been possible because only a limited number of country reports were available and only a few referred to these topics. Therefore, the present report has relied primarily upon the FAO publication, *Global Forest Resources Assessment 2000*[1] as well as country case studies and thematic papers. Other valuable sources include conferences and expert consultative group meetings held in the past two years.

A. Progress in implementation

1. Status of degraded lands in arid, semi-arid and dry sub-humid areas

9. Land degradation is recognized as a global problem, which, when occurring in arid, semi-arid and dry sub-humid areas (referred to as "drylands"), leads to desertification. According to the above-mentioned FAO report it is estimated that 2.6 billion people are affected by land degradation and desertification in drylands in more than 100 countries, covering 5,251 million hectares or 40 per cent of the Earth's land surface. Africa, with 1,952 million hectares, and the Asia Pacific region, with 2,233 million hectares, account for 80 per cent of drylands, while the remaining 20 per cent are located in Europe (207 million hectares), North and Central America (542 million hectares) and South America (317 million hectares). Over time, people living in dryland areas have evolved complex systems to minimize the risks posed by extreme climatic conditions, including the growth of vegetative cover to protect soil and water resources, conserve biological diversity and support agricultural productivity and sustainability, as well as to buffer the effects of desertification and resource degradation processes in arid and semi-arid zones. Vegetative cover also provides for amenities, recreation, maintenance and improvement of livelihoods. Various forces, however, are contributing to the degradation of resources in these areas, including climatic variations, inappropriate land use and agricultural practices driven by increasing population density.

10. It is reported that 73 per cent of rangelands in dryland areas are undergoing degradation, together with 47 per cent of marginal rainfed croplands and a significant percentage of irrigated croplands. Deforestation and overexploitation of forests and woodlands are among the major causes of land degradation. Programmes to address these problems focus, inter alia, on improved management and protection of forests and woodlands, increased vegetative cover outside forests and range improvement. The fight against land degradation and desertification is political, social and technological and the major issues fall under one or more of these aspects.

2. Policy and planning framework for rehabilitation and restoration of degraded lands in arid and semi-arid areas

11. IPF invited the Committee on Science and Technology of the Conference of the Parties to the Convention to Combat Desertification to support research in a number of areas. However, it decided to focus initially on questions concerning: knowledge of the desertification process; strengthening of the capacity of parties to prepare national reports; review of benchmarks and indicators; survey and evaluation of existing networks, institutions, agencies and bodies; and assessment of traditional knowledge and study of early warning systems.

12. More than 40 countries in Africa, Asia, Latin America and the Caribbean and Europe are implementing National Action Programmes to Combat Desertification, as recommended in the Convention to Combat Desertification, many of which are supported by agencies within the United Nations system and by multilateral and bilateral processes.

13. In Africa, four subregional programmes have been established and the concept is fairly well developed in the following areas: integrated management of international river, lake and hydro-geological basins; promotion of agroforestry and soil conservation; improvement of rangelands and development of fodder crops; development of renewable energy sources and technologies; and promotion of sustainable agricultural farming systems. In Asia, one regional programme (Box 1) and one subregional programme for Western Asia have been designed. The national action programme of China is an example of an initiative taken at country level (Box 2).

14. The International Meeting of Experts on the Special Needs and Requirements of Developing Countries with Low Forest Cover and Unique Types of Forests, held in Tehran, Islamic Republic of Iran in October 1999, provided the technical foundations for the Tehran Process in support of countries with low forest cover (see E/CN.18/2002/6). Initiatives to translate the Tehran Process into achievable strategies, action plans and development proposals, within the framework of national forest programmes, are under way in selected countries with low forest cover in the Near East and African regions.

Box 1
Regional action programme in Asia

The resolutions adopted during the first Regional Conference on the Implementation of the United Nations Convention to Combat Desertification, held in New Delhi in August 1996, prepared the ground for the regional action programme for Asia. As a follow-up, two other meetings were held to further mobilize political commitment to regional and subregional collaboration: the Ministerial Conference on Regional Cooperation to Implement the United Nations Convention to Combat Desertification in Asia, held in Beijing in 1997, and the International Expert Group Meeting on the Preparation of the Regional Action Programme for Combating Desertification and Mitigating the Effects of Drought in Asia, held in Bangkok in 1998. They also paved the way for the development of national action programmes and established thematic programme networks to support the regional and national action programmes, which are the mechanisms to combat desertification in the region.

Box 2
National action programme in China

Sixty per cent of the population of China lives in vast desertified areas. Desertified land is mainly distributed in arid, semi-arid and dry sub-humid areas, covering 13 provinces and autonomous regions in north-east China, northern China, north-west China and northern Tibet. China recognizes that combating desertification is critical to the environment and sustainable economic development.

The United Nations Development Programme (UNDP) project, "Capacity-building for the implementation of the United Nations Convention to Combat Desertification", is aimed at strengthening China's capacity to implement the Convention to Combat Desertification. Given that land degradation in dryland areas, or desertification, has multiple and complex causes and that over-exploitation of natural resources is central to the issue, the project focused on increasing the competency of managers, researchers and support staff through training and adequate resourcing.

3. Developments in the rehabilitation and restoration of degraded lands

15. The United Nations Environment Programme (UNEP) and the secretariat of the United Nations Convention to Combat Desertification are collaborating on a project on land degradation assessment in drylands, which aims to provide basic standardized information and methodological tools for land degradation assessment at national, regional and global levels. It is supported by the Global Environment Facility, in collaboration with FAO and the Global Mechanism of the United Nations Convention to Combat Desertification. A workshop, held in Rome in December 2000, recognized the need for the project to consider land degradation as a broad and cross-cutting issue and gave strong support to its further elaboration. Funding has been secured, with FAO acting as the executing agency.

16. The World Wide Fund for Nature (WWF) and the International Union for the Conservation of Nature and Natural Resources (IUCN) are planning to hold a special event on forest landscape restoration in Costa Rica, immediately prior to the second session of the United Nations Forum on Forests in order to present the approach to a broader audience and engage them in the development and refinement of key concepts.

17. In order to facilitate access to information on financing of projects to combat desertification, the Global Mechanism of the United Nations Convention to Combat Desertification designed a system to search, collect and disseminate financial information related to land degradation through a variety of formats and data repositories, such as documents, publications, proprietary databases, web sites, online information systems and networks.

18. The International Tropical Timber Organization (ITTO), in collaboration with FAO and IUCN, is in a process of developing guidelines on the management of secondary tropical forests, the restoration of degraded tropical forests and the rehabilitation of degraded forest lands.

19. Although some countries have had long experience in the use of wastewater and treated wastewater for irrigation, the historical objective of these activities has been largely disposal-oriented. Only in recent years has emphasis been placed on productive and purification aspects. The prevailing tendency has been to allocate wastewater to agricultural uses. Standards and guidelines for wastewater use and treated wastewater use in irrigation apply to agricultural crops. No detailed standards and guidelines have been developed for trees and forest plantations. There are compelling reasons to examine more closely the feasibility of irrigating trees and forests plantations with wastewater. These include: health factors (the reduced risk compared to food crop contamination with pathogens or heavy metals); environmental considerations (benefits provided by greenbelts and other urban and peri-urban forestry plantings, conservation of water resources, rehabilitation of desert lands); economic benefits (the value of forest products and environmental services); and social and aesthetic values. These issues are being addressed in many countries in the Near East with low forest cover.

4. Developments in the rehabilitation and restoration of secondary tropical forests

20. There is no recent definitive data on secondary tropical forest resources. However, their significance as a future forest resource is increasingly being recognized. FAO published the most recent information in 1996, based upon 1990 data sets.[2] The global secondary tropical forest area was then estimated at 32 per cent of global forest cover. In Africa, the secondary tropical forest area was estimated at 313 million hectares; in Latin America, 130 million hectares; and in Asia, 88 million hectares. The potentially productive secondary tropical forest area in Africa is estimated at 380 million hectares; in Asia, 181 million hectares; and in Latin America, 162 million hectares.[3]

21. The first workshop on the management of secondary tropical forests, sponsored by the Center for International Forestry Research (CIFOR), the German Agency for Technical Cooperation (GTZ), the Netherlands, the Amazonian Cooperation Treaty and the Central American Council of Forests and Protected Areas, was held in Pucalpa, Peru, in June 1997. Two other workshops were subsequently held in Asia: (a) an international workshop, sponsored by CIFOR, the International Cooperation Centre of Agricultural Research for Development and USAID in Bogor, Indonesia, in November 1997; and (b) a regional workshop, sponsored by CIFOR, GTZ and the Netherlands in Samarinda, Indonesia, in April 2000. Within the Asia Pacific region, a project, funded by the Netherlands and executed by FAO, extended the network of demonstration sites for forest rehabilitation of logged over forests to include Cambodia, Papua New Guinea and Sri Lanka.

22. In the past, focus was primarily on the management of secondary forests without due regard of the factors responsible for secondary forest formation and transformation. Deforestation around urban areas has been particularly severe and has been partially caused by the collection of wood and non-wood forest products for fuel and other uses. This situation was partly explained by external factors, such as high population growth and low incomes. However, deforestation is also caused by inappropriate land clearing for agricultural and/or cattle raising and unsustainable management and harvesting practices, exacerbated by the inadequacy of current policies and institutions to protect the natural forest resources. Fire is a cheap and effective land clearing tool, however, it has an adverse effect on the fertility of the

land, resulting in the fact that alternative use of the land is abandoned. This results in secondary forest regeneration on degraded lands. In many countries, secondary forest areas are larger than the remaining areas of natural forest.

23. Given the importance of secondary tropical forests in Africa, two workshops will be sponsored by FAO, GTZ and the Netherlands, one in Zimbabwe in December 2002 and the other in Cameroon in March 2003, to compile information on the status and extent of secondary tropical forests in Africa; the causes and processes leading to their formation and transformation; use patterns; social, economic and environmental factors; current and future policies and management practices; constraints and issues relating to secondary forest management in Africa; and priority actions needed for the better management of this resource.

24. The magnitude and importance of secondary forests in some countries is so high that it is predicted that future supply of wood fiber as well as non-wood forests products, goods and services will depend heavily on these resources. It has also been reported that, cost wise, it is cheaper to manage secondary forests than to create new planted forests.[4] Thus it is important to develop guidelines to manage them in accordance with sustainable practices as a means to enhance local, national and regional economies and address the basic needs of an ever-increasing population. However, the solution may not be so simple. In recognition of their importance, ITTO and FAO have embarked on a joint initiative to prepare Guidelines for the Management of Secondary Tropical Forests and Restoration of Degraded Tropical Forests and Tropical Forest Lands. The multilingual report is expected to be available by May 2002.

5. Policies affecting development of planted forests

25. Sound policies and conditions need to be in place to encourage investment in planted forests. Land availability, land tenure and crop ownership are important issues that determine confidence for such investment. In developed countries and in some countries with economies in transition, surplus or marginal agricultural land is becoming increasingly available for planted forests and natural regeneration when owners are willing to commit land for the long term. Land-use conflicts can occur where planted forests are developed on land perceived as suitable for competing uses. In developing countries, policies related to land ownership, land-use, crop ownership rights and freedom to manage and market the crop, which are fundamental to a healthy investment climate, are not always in place.

26. Emerging trends in forest policy affecting planted forests include the:

- Increase in stakeholder participation in policy development and implementation;
- Increase in environmental conservation issues, including international protocols;
- Rise in social equity concerns, especially relating to local and indigenous people;
- Rationalization of economic structures relating to forestry, especially market access;
- Economic efficiency (commercialization and privatization) being softened by demands of social equity and ecological sustainability;

- Increase in the areas of planted forests, with increases in activity by all agents, from individuals to Governments, in the pursuit of their respective goals.

27. While recognizing the economic, environmental and social benefits of planted forests, countries are increasingly realizing that these resources are complementary to natural forests and should not be expanded at the expense of local communities and biodiversity rich habitats.

28. More countries are introducing incentives to encourage planted forests. Direct incentives can include cost-sharing, subsidized credit, fiscal incentives, reduction of uncertainty through loan guarantees, insurance, forest protection agreements and provision of land tenure. Indirect incentives can include provision of market information, extension and education and research. Incentives may not be needed if the private returns from forestry exceed those from other land uses or if the addition of incentives will still not provide an attractive private return.

29. In some countries, particularly in the Asia Pacific region, Governments have implemented logging bans over large areas of natural forests. The reasons vary but are related to environmental concerns. The net effect of deforestation and the exclusion of natural forests as sources for wood production is that some countries in the Asia Pacific region have wood deficits and roundwood harvesting is exceeding growth. The worst affected areas are South Asia, the islands of South-East Asia, with continental South-East Asia also under strain. A recent study reported that, in the Asia Pacific region, the current pace of industrial development of planted forests would barely keep pace with losses from deforestation and the transfer of natural forests to protected status.

30. To date, funding for the reduction of greenhouse gas through carbon sequestration by trees provides for about 4 million hectares of planted forests worldwide. Under the Clean Development Mechanism of the Kyoto Protocol, agreed upon at Bonn during the second part of the sixth Conference of the Parties to the United Nations Framework Convention on Climate Change in July 2001, afforestation and reforestation were recognized as the only eligible land use, land use change and forestry activities. This approach was formally decided upon at the seventh Conference of Parties, held from 29 October to 10 November 2001, in Marrakech, Morocco. It is anticipated that it will lead to a significant increase in planted forests in developing countries, including countries with low forest cover. The agreement on carbon sinks and new funding for the reduction of greenhouse gases is expected to channel more financial resources into forest activities in developing countries and to strengthen international efforts in this area. However, these activities will also require a monitoring and verification system to ensure that planted forests are not established at the expense of the local population or of efforts to conserve biological diversity and that they fulfil their function as carbon sinks.

6. Sustainability of planted forests

31. It is possible not only to sustain but also to increase productivity in successive rotations of planted forests. This requires a clear definition of the end-use of planted forests and sound management. There is a need to integrate strategies for tree improvement programmes, nursery practices, matching species and provenance to sites, appropriate silviculture, forest protection and harvesting practices. Experience has shown that adopting this holistic approach can bring about substantial gains in productivity.

32. It is now recognized that burning and excessive cultivation in site preparation, soil compaction from mechanical operations, inappropriate harvesting techniques and poor forest protection has contributed to loss of nutrients and soil erosion, with a resultant loss in productivity of planted sites. There are few in-depth studies of changes in productivity between rotations or over several rotations. Measurement of yield in successive rotations of trees suggest that, so far, there is no significant or widespread evidence that plantation forestry is unsustainable in the narrow sense. Reported decline in yield is usually associated with poor silvicultural practices and management.[5]

33. Excellent data are available from studies on *Pinus patula* in Swaziland. The tree is grown intensively in 15-year rotations,[6] showing either nil or positive changes in site productivity over three rotations. The question of declining growth in planted teak (*Tectona grandis*) in Indonesia and India remains unclear. Countries recognize that it is necessary to conduct more extensive research on the long-term (over several rotations) sustainability of planted forests not only from an economic point of view but also from social and environmental perspectives.

34. To assist in sound planning, implementation and monitoring of planted forests, a range of management tools are available, including codes of harvesting or forest management practice; criteria and indicators for sustainable forest management; management and operational planning guidelines; voluntary certification schemes; environmental and social impact assessment; and participatory planning guidelines.

35. It is increasingly recognized that trees are planted for a wide range of reasons, including: support for agricultural production and community livelihoods; poverty alleviation; and enhanced food security. Communities and small-holder investors, including individual farmers, grow trees for shelter, home gardens, woodlots and to provide wood and non-wood forest products, fuelwood, fodder and shelter. Outgrower schemes, under various types of contracts with wood processing industries, provide valuable sources of wood supply.

7. Role of planted forests in sustainable forest management complementary to natural forests

36. Owing to environmental concerns and higher costs for access to natural forests, planted forests are becoming more viable as an alternative or complementary source of wood fibre. However, their competitiveness against other land uses, including agriculture and urban development, still constrains their expansion. Due to potential productivity and availability of suitable land, planted forests are increasingly concentrated in the tropical regions and in temperate regions of the southern hemisphere.

37. In Thailand, where there is a policy to preserve all remaining natural forests and conservation areas, the Government is promoting an increase in planted forests, with a 60:40 split between private and State-owned. Expectations are that planted forests will rehabilitate land and supply wood for the domestic market. The establishment of large-scale planted forests has faced strong opposition from rural people who see them as mainly benefiting the rich. Focus has been on small-holder plantings with local participation, but these resources cannot meet the demand for wood. It is reported that the effect of the logging ban in Thailand has been to increase illegal imports of natural forest logs from neighbouring countries.

38. In Viet Nam, between 1990 and 1998, there was a 40 per cent decline in wood production from natural forests. Exploitation for firewood has decreased by 20 per cent but illegal logging appears to have increased. About 30 per cent of large logs used for sawn timber currently come from natural forests, 50 per cent from planted forests, including rubber forests, and about 20 per cent are imported. Shortages of 1.5 to 2 million cubic metres are expected to continue until 2005 and imports are expected to grow. Demand is also rising. There are plans to regenerate 1 million hectares of natural forest and to plant a further 5 million hectares, of which 3 million will be set aside for industrial uses. Alternative funding options and feasibility studies are currently being undertaken by international agencies and non-governmental organizations.

39. Due to natural disasters, China has placed priority on natural forest conservation and protection, with future harvesting increasingly to come from planted forest resources. The current 10-year plan calls for new plantings of both fast-growing species and protection plantings on a 1:4 ratio. Over half the planted forests are in the southern region while natural forests are largely in the north- and south-east. The productivity of past plantings is reported to be lower than expected and a shortfall of roundwood of 27 million cubic metres is expected in 2003. In the short term, this will be met by imports, although planted forests will eventually assist in filling the gap.

40. In the Philippines, logging bans or harvest moratoria are in force in 70 per cent of the forests. The allowable cut from natural forests dropped from 5 million cubic metres in 1990 to one tenth that level in 2000. While the current demand is expected to be at around the 1990 level, only 12, 15 and 1 per cent of the supply comes from natural, coconut and planted forests, respectively. Another 16 to 20 per cent is met by imports and the remaining half has apparently been taken up by steel and cement substitutes and illegal sources. Planted forests, while being recognized as a sustainable source of wood, have not met expectations. Government policies regarding industrial planted forests have changed frequently, leading to instability and uncertainty and resulting in low investment. The Philippines is currently focusing on wood imports.

41. In Sri Lanka, prior to the logging ban on some natural forests in 1989, the harvest was about 980,000 cubic metres, with 44 per cent coming from natural forests, 8 per cent from planted forests and the remainder from non-traditional sources of wood (trees outside forests and rubber and coconut plantings). In 2000, although Sri Lanka is almost self-sufficient in wood, the harvest from planted forests met only one third of the anticipated level. The shortfall was made up from trees outside forests, non-traditional sources of wood and imports of logs, sawn timber and panel products.

42. In New Zealand, the annual production from planted forests is 17 million cubic metres, over half of which is exported. By 2010, the projected annual cut is 30 million cubic metres. Although planted forests supply almost all domestic roundwood demand, there is concern over how to meet the demand for the decorative and specialty woods that have traditionally come from the native forests.

43. New Zealand is more than self-sufficient in wood solely from its planted resources. Planted forests are expected to increase in importance in China and Viet Nam. On the other hand, there have been problems with starting up planted forests in Sri Lanka, the Philippines and Thailand. In the tropics, non-forest sources, such as in trees outside forests as alternative sources of wood (rubber, coconut and oil palm), will gain in importance.

8. Sustainability of wood supply

44. The lack of reliable information on planted forest resources (production forest areas, species, purpose, ownership, age classes, growth, yields, quality, harvest volumes, forest products) is a serious constraint in forecasting sustainability and calculating financial and economic contributions. Until more complete information about these resources is made available, analysis of future scenarios may not provide a true assessment of their potential.

45. Two recent studies by the Australian Bureau of Agricultural and Resource Economics[7] (1999) and FAO[8] (2000) recognized that the increasing demand for wood is influenced by population growth, economic growth, prices for forest products and substitutes. They further concluded that supply is influenced by the state of forest resources and the cost of accessing them as well as by management practices and policies. Comparison was difficult because the assumptions addressing these underlying factors were not always clearly defined.

46. Market analysis indicates that the global demand for pulpwood-based products such as paper and panel products are likely to increase in relation to demand for solid wood products such as sawn timber and plywood. As a result, short rotation pulpwood plantings are likely to dominate new plantations although the changing nature of global wood supply will also provide a source for sawlogs.

47. The study conducted by the Australian Bureau of Agricultural and Resource Economics indicated that future increases in the global supply of wood would be largely from planted forests. Industrial wood supply from planted forests is estimated to increase by 67 per cent, from 624 million cubic metres in 2000 to 1,043 million cubic metres by 2040. The current share of the supply of wood originating from planted forests is estimated at 35 per cent. It is projected that the contribution of wood from planted forests to global roundwood supply could increase to 46 per cent by 2040 (see table 1). North and Central America, Europe, the former Soviet Union and Asia are expected to maintain their dominance over the world wood supply. In a regional context, the significance of planted forests for wood production is likely to increase in all regions. Planted forests in South America and Oceania are projected to provide, respectively, 66 and 67 per cent of their total industrial roundwood supply by 2040.

Table 1
Predicted contribution of planted forests to regional wood supply

Region	2000	2020	2040
	Percentage		
Africa	20	39	40
Asia	32	46	48
Europe/former Soviet Union	46	53	55
North and Central America	22	29	31
Oceania	55	66	67
South America	63	65	66
Worldwide	**35**	**44**	**46**

Source: Australian Bureau of Agriculture and Resource Economics, 1999.

48. Forest plantation descriptions (background, species composition, trends, issues, references) and statistics (annual planting rates, planted areas by species, ownership and purpose, including non-forest planting) have been collected, analysed and reported for each country in the FAO *Forest Resources Assessment 2000*. This is the most comprehensive, transparent and current data available. The global studies referred to above were completed prior to the release of the FAO report.

9. Strengthening institutions

49. At the International Conference on Timber Plantation Development, organized by the Government of the Philippines, ITTO and FAO in Manila in November 2000, 74 participants from 17 countries recognized that planted forests have the potential as a renewable, energy efficient resource to provide a sustainable supply of wood and non-wood products and services, including social benefits and environmental services such as carbon sequestration, soil protection and water protection. In order to realize this potential, it was recognized that supporting mechanisms were necessary from Governments, the private sector, research institutions, education and training agencies and other stakeholders. It was further recognized that Governments needed to provide clear, consistent and stable policies and a favourable investment climate in order to enhance the viability of planted forest development. Efforts should also be made to simplify regulations, clarify land and resource tenure and facilitate the use of technical and financial resources. International organizations and bilateral and multilateral agencies were encouraged to increase their support and assistance for the development of planted forests, particularly in tropical developing countries. However, it was recognized that under an enabling environment, the private sector would be the primary source of investment capital and professional management for forest plantations.

10. International collaboration

50. Studies, proposals, conferences and publications on planted forest development have all involved collaboration between Governments and international organizations, including non-governmental organizations, notably FAO, the World Bank, UNEP, UNDP, CIFOR/the International Centre for Research in

Agroforestry/the Consultative Group on International Agricultural Research, ITTO, the International Plant Genetic Resources Institute, the International Fund for Agricultural Development, IUCN, the International Union of Forest Research Organizations and WWF. Initiatives include:

- International experts meeting on the role of planted forests in sustainable forest management, Santiago, 6 April 1999, sponsored by the Governments of Chile, Denmark, India, New Zealand and Portugal, with technical support from FAO;
- International Conference on Timber Plantation Development, Manila, November 2000, sponsored by the Department of Environment and Natural Resources of the Philippines, ITTO and FAO;
- Planning and seeking sponsors for an international expert meeting on the role of planted forests in sustainable forest management, Rotorua, New Zealand, February 2003.

51. To assist with efforts to combat desertification, a Global Mechanism was established under the authority of the Conference of the Parties of the United Nations Convention to Combat Desertification. The mandate of the Global Mechanism is to promote actions leading to the mobilization of substantial financial resources, including for the transfer of technology, on a grant basis, and/or on concessional or other terms, to affected developing country parties. In response to the multisectoral dimensions of the Convention to Combat Desertification, the Global Mechanism acts as an honest broker and catalyst to draw on and add value to the interventions of other development partners. In order to improve the coordination of efforts to implement the Convention to Combat Desertification, the Global Mechanism receives support and advice from a Facilitation Committee, which brings together representatives of major multilateral institutions.

52. The Council of Global Environment Facility (GEF), at its meeting held from 5 to 7 December 2001, agreed to consider, at its next meeting, designating land degradation, primarily desertification and deforestation as a focal area in order to enhance its support for the successful implementation of the United Nations Convention to Combat Desertification. The Council also requested the GEF secretariat, in consultation with the Implementing Agencies, appropriate executing agencies and the secretariat of the Convention to Combat Desertification, to prepare elements of an operational programme on land degradation, primarily desertification and deforestation.

B. Means of implementation

1. Finance

53. Whether development activities are carried out by Governments or the private sector, lack of funds, particularly in developing countries and countries with economies in transition, is a constraint to the rehabilitation and restoration of degraded lands and to the promotion of natural and planted forests. Specific data on the status, sources and amounts of funds being invested or committed are not available. However, some trends include:

(a) Private investment through commercial banks or quasi-commercial banking institutions and institutional investors seem to be increasing in all regions, with some Governments divesting their interests in commercial or industrial planted forests;

(b) Public funds from Governments and multilateral or bilateral funds in traditional industrial or commercial plantations seem to be decreasing. However, there is increasing support for rehabilitation of degraded lands (low forest cover countries, mangroves, combating desertification) and tree planting to sustain livelihoods and reduce poverty in rural areas (agroforestry, smallholder forestry, shelterbelts, etc.);

(c) Insufficient Government budget allocations to support normative operations in the forest sector, including tree improvement, silviculture, protection, inventory, research, training and monitoring;

(d) Developing countries increasingly recognize the role of Government incentives to encourage investors to plant trees;

(e) Private sector and associated smallholder outgrower schemes (funds, technical assistance in return for markets) are gaining interest in Africa, South America and Asia;

(f) Project or programme specific trust funds from multilateral or bilateral donors are available for rehabilitation and restoration of degraded lands;

(g) Technical cooperation projects for short-term, high priority issues related to planted forests have increased markedly in the past two years;

(h) Rural credit facilities through Governments, donors or non-governmental organizations are available at the community or family levels;

(i) Carbon securities and exchange trade on the open market have stimulated a significant amount of interest, particularly over the past two years, and the volume can potentially increase in the near future;

(j) Prototype Carbon Funds funds from the World Bank have recently become available, including for investment in reforestation and afforestation.

54. Funding for technical assistance seems to be on the rise to assist Governments in developing countries to: identify projects; conduct feasibility studies and environmental and social impact assessments; prepare investment proposals; and implement programmes.

2. Transfer of environmentally sound technologies

55. Governments from developing countries and countries with economies in transition have requested international agencies to assist them in introducing environmentally sound technologies to rehabilitate and restore degraded lands and to promote planted forests:

(a) Information technology and networks are available although developing countries cannot always access and benefit from this technology;

(b) Satellite imagery and photo interpretation, inventory techniques, forest resources assessment and management information systems are critical tools to assist in policy formulation, planning and monitoring. However, despite technical

support from a variety of sources in these fields, country capacity remains weak due to a lack of resources;

(c) Research and development in desertification (benchmarks and indicators, traditional knowledge and early warning systems), technology transfer in genetic resources, tree improvement, nursery practices, silviculture, forest protection, reduced impact harvesting, non-wood forest products and marketing have been recognized as priority areas of research, however a lack of resources in developing countries seriously impairs progress in these areas;

(d) Modern technology for primary and secondary wood processing for wood products and efficient woodfuel burning equipment are recognized as important, however developing countries remain constrained by outdated equipment.

3. Capacity-building

56. Governments from developing countries and countries with economies in transition need support from the international community to address issues related to the rehabilitation and restoration of degraded lands and to promote planted forests, such as:

(a) Legal, regulatory, policy and strategic planning frameworks for reforestation and afforestation remain complex, inconsistent and difficult to apply;

(b) Organizational structures and mechanisms at national and local government levels are not always oriented to serve investor needs to facilitate planted forest development (land and crop tenure rights, access to funds, technical support, freedom of access to markets, etc.);

(c) Curricula and support to education and training; research and development; technical support and extension systems do not always change when new priorities are established under policy and planning frameworks;

(d) Despite increased access to current information and networks on the Internet, dissemination of information and reports to developing countries remains limited;

(e) Participation in international processes and forums is a way to transfer knowledge; Governments need to view this as an institutional investment.

IV. Conclusions

57. The lack of reliable data and information on planted forests and secondary tropical forest resources is a serious constraint in policy and planning formulation, implementation, monitoring, assessment and reporting. Until the information base is improved, analysis of future scenarios for forest resources management may not provide a meaningful assessment of their potential.

58. Many tools to sustainably manage natural and planted forests are available or under preparation, including codes of harvesting or forest management practice, criteria and indicators, management and operational planning guidelines, voluntary certification schemes, environmental and social impact assessment and participatory planning guidelines. However, their application needs to be expanded, particularly in developing countries and countries with economies in transition.

59. The secondary tropical forest area is estimated at 32 per cent of global forest cover, with potential to increase substantially, both in area and economic significance as a source of future wood, non-wood forest products and protection values. The practical guidelines for management of secondary tropical forests are an important initiative. However, these also need to be balanced by addressing causal issues. At the workshops scheduled to take place in Africa in 2002 and 2003 (see para. 23 above) this more holistic approach will be proposed.

60. Trees are increasingly being planted to support agricultural production and community livelihoods, to alleviate poverty and to enhance food security. Communities and smallholder investors, including individual farmers, are growing trees as shelterbelts, home gardens, woodlots and a range of agroforestry systems to provide wood and non-wood forest products, fuelwood, fodder and shelter, particularly in low forest cover countries. Outgrower schemes under various contractual arrangements with wood processing industries provide valuable additional sources of supply.

61. The current share of the supply of global roundwood originating from planted forests is estimated at 34 per cent and is projected to increase to 46 per cent by 2040. In a regional context, the significance of planted forests to wood production is likely to increase in all regions. By 2040, planted forests in America and Oceania are projected to provide 66 and 67 per cent, respectively, of their total industrial roundwood supplies. Planted forests provide a critical addition to raw material supply from natural forests, including industrial roundwood and fuelwood.

62. Although there is increasing international collaboration and alternative sources of funds for addressing rehabilitation and restoration of degraded lands and development of forest lands, constraints in developing countries include access to information technology and networks and limited capacity to formulate sound plans and proposals.

V. Suggestions for consideration by the United Nations Forum on Forests at its second session

63. The following actions are proposed for the second session of the United Nations Forum on Forests:

(a) Recognizing land degradation as a major threat to sustainable development, urge countries to adopt more holistic approaches in unison with policy reforms, technical guidelines and support systems to address rehabilitation and restoration through secondary tropical forest management and planted forest development;

(b) Urge the Assembly and Council of GEF to designate land degradation, primarily desertification and deforestation, as a GEF focal area, and to allocate financial and technical resources to address those problems;

(c) Support the Tehran Process recommendations to strengthen the Low Forest Cover secretariat and build the capacity of low forest cover countries to promote the inclusion of forestry and forestry-related issues in their national development agendas and in the implementation of their national forest programmes;

(d) Encourage countries, multilateral organizations and other stakeholders to rehabilitate and restore degraded lands and forests, and to promote sustainable management practices;

(e) Encourage close collaboration between UNFF and CCD, as well as among the public and private sectors, NGOs and other stakeholders in rehabilitation and restoration of degraded forest lands and development of planted forests;

(f) Welcome the initiatives such as the workshops on secondary tropical forests, to be held in Zimbabwe and Cameroon in the coming years, and encourage other regions to also organize similar cooperative activities to rehabilitate and restore productive capacities of degraded lands.

Notes

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[8] The Global Outlook for Future Supply from Forest Plantations, working paper, GFPOS/WP/03, a paper prepared for the 1999 Global Forest Products Outlook Study, FAO, Rome, February 2000.